

REMARKS

Claims 10, 14-17, 19, 20, 22-26 and 28-34 are pending in the application. This Amendment amends claim 10 to correct a typographical error.

The Claimed Invention

An exemplary embodiment of the invention, as recited by, for example, independent claim 10, is directed to a plastic container for domestic washing machines wherein a plastic member is accommodated on at least one section of a surface of a bearing shell, with the plastic member and the bearing shell together forming a structural unit, before the remainder of the plastic container is injection-molded onto the structural unit formed by the bearing shell and the plastic member, and the material of the plastic member differs from the material of the remainder of the plastic container.

Another exemplary embodiment of the invention, as recited by, for example, independent claim 19, is directed to a container for a washing machine having a plastic member formed on a bearing shell and a container body being formed on the plastic member, wherein the plastic member is made from a first plastic material and the container body is made from a second plastic material different than the first plastic material.

Another exemplary embodiment of the invention, as recited by, for example, independent claim 25, is directed to a method for making a container for retaining liquids within a washing machine, the method including the steps of forming a plastic member on a bearing shell by a first injection molding process, the plastic member and the bearing shell together forming an intermediate structure, then applying a container body formed on the intermediate structure by a second injection molding process, wherein the plastic member is formed from a first plastic material and the container body is formed from a second plastic material different than the first plastic material.

Another exemplary embodiment of the invention, as recited by, for example, independent claim 29, is directed to a method for making a container for retaining liquids within a washing machine, the method including the steps of applying a plastic member on a bearing shell via a first injection molding process, the plastic member and the bearing shell together forming an intermediate structure, and after the plastic member applied on the bearing shell has at least partially cured following the step of applying the plastic member, forming the remainder of the container on the intermediate structure with a second injection molding process, wherein the plastic member is formed from a first plastic material and the remainder of the container is formed from a second plastic material different than the first plastic material.

In some conventional washing machines, the plastic container is formed by injection molding around a bearing shell arranged in the mold of the injection molding machine prior to injection molding the plastic container. Differences in the shrinkage coefficients, cooling curves, and masses of the plastic container material and the bearing shell material can cause several problems, including the formation of gaps between the plastic container and the bearing shell that can result in a weak joint between the container and the bearing shell and/or water penetrating the joint between the container and the bearing shell.

The present invention addresses and solves these problems by providing a plastic container for domestic washing machines including a plastic member accommodated on at least one section of a surface of a metallic bearing shell, the plastic member and the bearing shell together forming a structural unit, before the remainder of the plastic container is injection molded on the structural unit, and the plastic member is made from a different material than the remainder of the plastic container.

The Durazzani Reference in view of the Cinello Reference

The Office Action rejected claims 10, 14-17, 19, 20, 22-26 and 28-34 under 35 USC §103(a) as allegedly being obvious in over GB 2 333 300 A to Durazzani in view of EP 0 219 115 A2 to Cinello. Applicants respectfully traverse the rejection.

In addition to the arguments and comments presented in the previously filed Amendment D, Applicants submit the following.

Amendment D disagreed with the previous Office Action's assertion that it would have been obvious to produce the rear area of the tub of Durazzani from a different, stronger material than the remainder of the tub as taught by Cinello in order to increase resistance of this region to mechanical stress and lower production costs by decreasing the amount of more expensive, stronger plastic necessary for the tub. Applicants further disagreed that such a device has the features of the claimed invention.

Regarding claims 10, 23, 25, 26, 28, 29, 33 and 34, Applicants respectfully reassert that Cinello teaches away from using a metal member to position bearings in a washing machine. The Office Action, in its Response to Arguments section, states that the Examiner was unable to locate the passage referred to in Amendment D as supporting Applicants' assertion that Cinello teaches away from using a metal member to position bearings in a washing machine. Applicants direct attention to the paragraph beginning at page 1, line 37, of Cinello, which is reproduced here:

“It would now in fact be possible to eliminate the short-comings of these solutions and to achieve a durable mounting of the bearings in a tub if such tub were completely made of a plastic material capable of sustaining the mechanical stresses acting on the bearings.”

The “solutions” that his paragraph refers to are described as a “first type” where the bearings are maintained at axially spaced positions by a metal sleeve interposed therebetween (page 1, lines 10-12), and a “second type” where an end wall of a one piece tub carries a metal sleeve formed with seats for the bearings (page 1, lines 12-15). Cinello goes on to criticize, discredit and discourage these solutions (which is, as pointed out in the Office Action, evidence of teaching away from these solutions). At page 1,

lines 21-29, Cinello discredits the “first type” of solution by pointing out that “the bearings are subjected to considerable mechanical stresses tending to progressively deform the material of the tub adjacent the locations of the bearings.” At page 1, lines 30-36, Cinello discredits the “second type” of solution by pointing out that “[t]he construction and manufacture of this tub is thus obviously rather complicated.” Cinello then goes on to describe how a tub can be made from plastic without any use of metal to position bearings. As a result, Applicants respectfully submit that Cinello clearly teaches away from using a metal member to position bearings in a washing machine.

Further, the technical significance of Cinello’s innovation appears to be directed to plastic molding technology. Durazzani discloses a single-component plastic tub molded around a metal bearing shell (hub 20), where the bearing shell has a bell-shaped extension 23 which projects from hub 20 into the plastic portion of the tub. Cinello discloses a bearing shell of generally cylindrical shape which is made of plastic and obtained by a two-step molding process. First, a cylindrical spacer is formed in a first mold. The spacer and the bearings are placed into a second mold, where the spacer and the bearings are overmolded with the remainder of the shell, thereby creating the outer circumference of the shell. Subsequently, the tub is molded by overmolding the shell in a third mold. In comparison to metal, plastic material is relatively soft and not very suitable to forming by machining or such processes. Thus, while a metal shell could be cast in an approximate form and be machined subsequently to the dimensions desired for holding the bearings; similar treatment of a plastic shell would be difficult. Cinello gives a practical solution to that problem by subdividing the shell into parts which can be manufactured one after the other, and at a sufficiently high precision to avoid any machining after molding. As to bearing mechanical load it should be noted that Cinello’s shell will bear such load predominantly in the outer regions of the shell, not in its inner parts defined by the spacer.

Even if one was to combine the teachings of Durazzani and Cinello, it would not lead to the claimed invention. If one was to use Durazzani’s bell-shaped extension in

Cinello's plastic shell, assuming that Durazzani's bell-shaped extension has been produced by some form of casting, the person skilled in the art would make a shell completed with the bell-shaped extension in Cinello's second molding step. Absent any indication that could motivate the skilled person otherwise, the two-part structure of Cinello's shell (comprising the plastic spacer and the outer shell with the bell-shaped extension) would be retained. Applicants submit that no such motivation exists in either Durazzani or Cinello.

The claimed invention is much more complex than any product obtainable by combining the teachings of Durazzani and Cinello. In contrast to anything obtainable by combining the applied references, the claimed inventive product has a three-part structure: the metallic inner shell, the plastic member accommodated on the surface of the inner shell, and the remainder of the tub moulded on the plastic member. It is a clear over-stressing of the present teachings to try to infer such structure from them.

In light of the above, Applicants respectfully submit that the combination of Durazzani and Cinello does not teach or suggest the features of claims 10, 14-17, 19, 20, 22-26 and 28-34 and, therefore, rejection under 35 U.S.C. §103(a) is inappropriate. As a result, Applicants respectfully request that the rejection be withdrawn.

CONCLUSION

In view of the above, Applicants respectfully request entry of the present Amendment and allowance of claims 10, 14-17, 19, 20, 22-26 and 28-34. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

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September 7, 2010

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